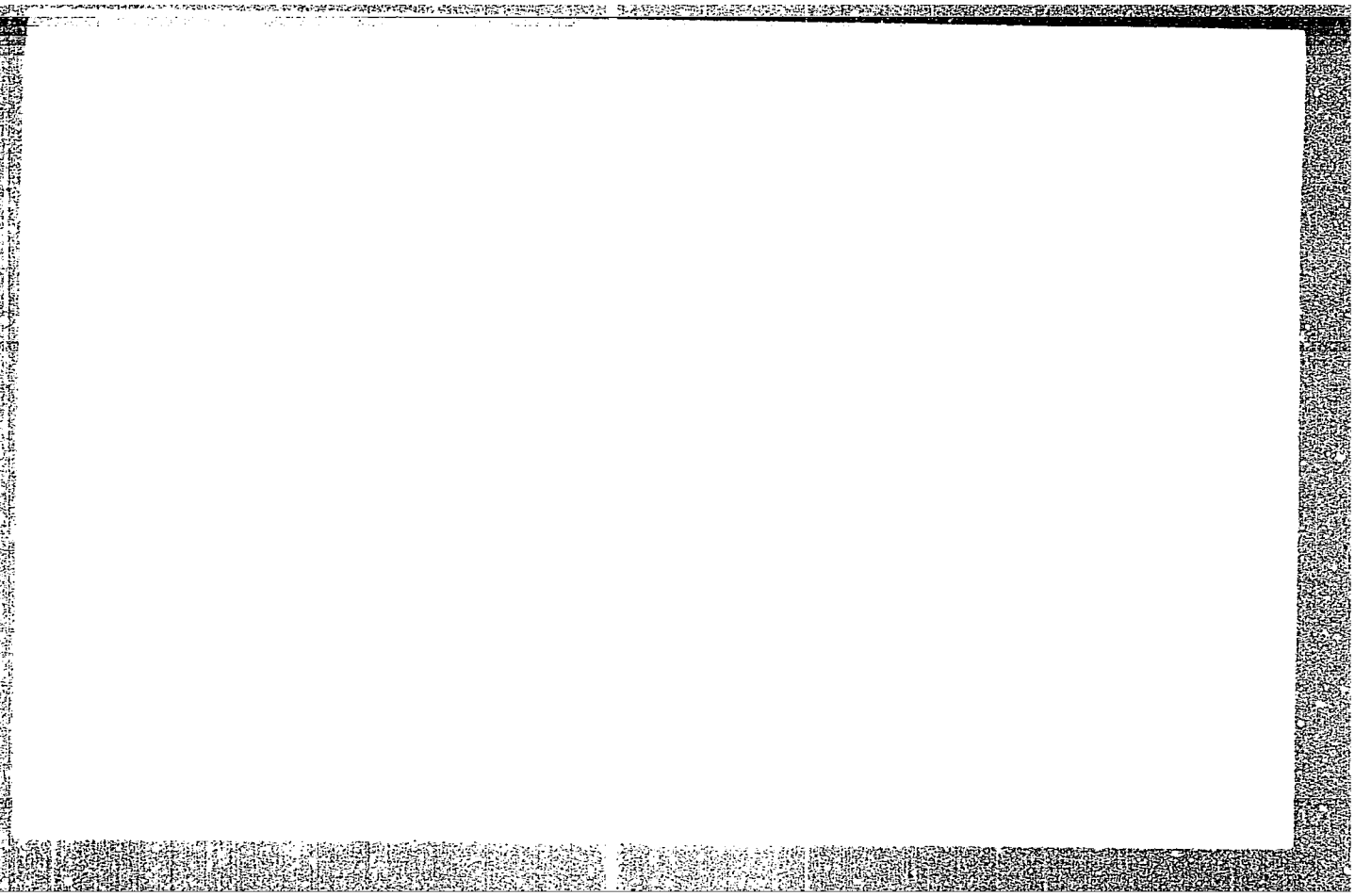
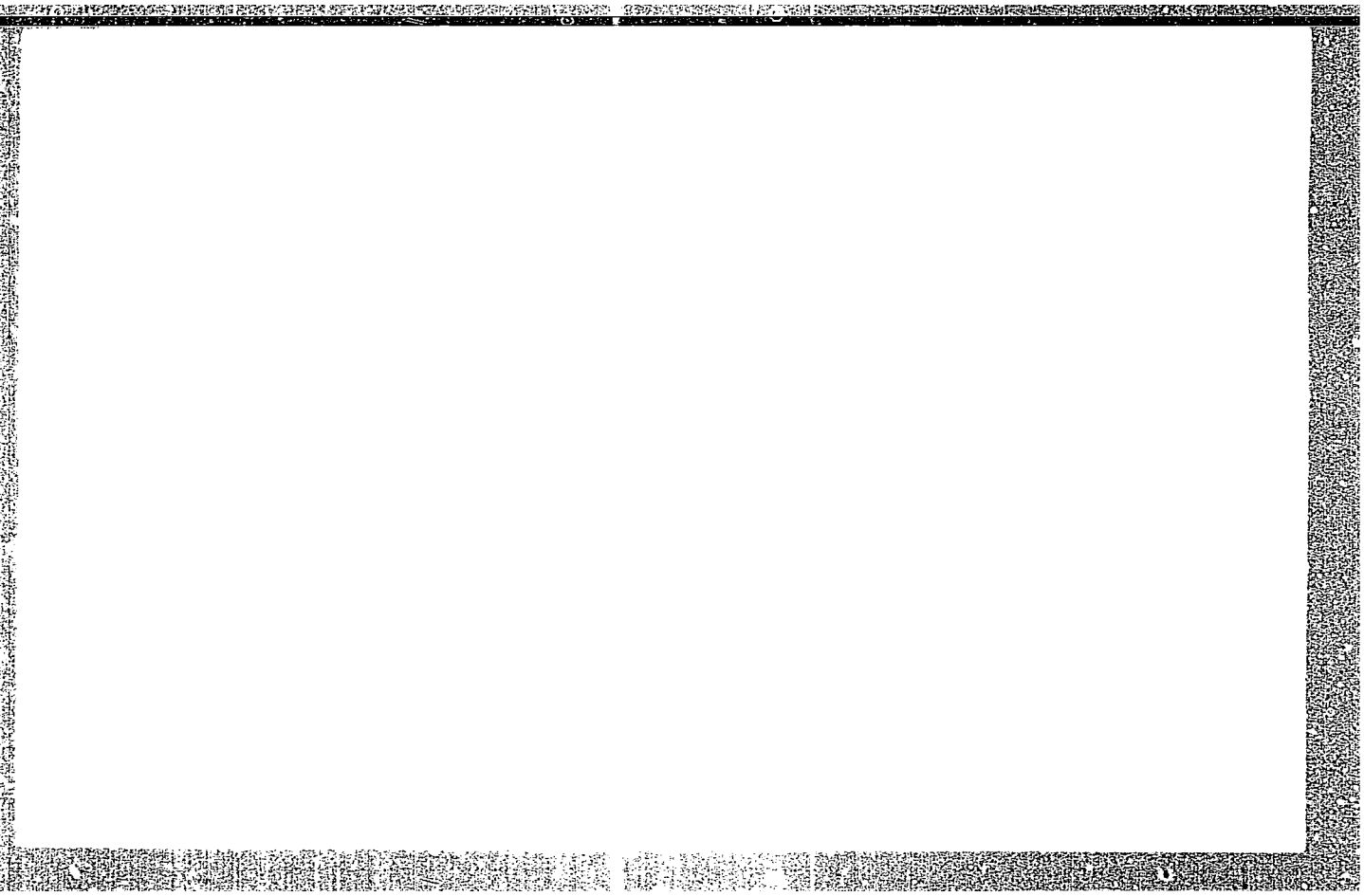


APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757120005-3"



APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001757120005-3"

ACCESSION NR: AR4014746 S/0058/63/000/012/A020/A020

SOURCE: RZh. Fizika, Abs. 12A202

AUTHOR: Tsitovich, A. P.; Bochkov, G. T.; Istomin, D. A.; Sotnikov, S. K.

TITLE: 2048-channel time analyzer

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2, Ch. 2. M., Gosatomizdat, 1963, 72-95

TOPIC TAGS: analyzer, time analyzer, 2048 channel analyzer, drum memory analyzer, multichannel time analyzer, nuclear instrumentation

TRANSLATION: A 2048-channel time analyzer with magnetic drum memory is described. The magnetic drum is superior to other memory devices in that it uses fewer control elements. However, the magnetic drum is a relatively "slow" memory unit. In this connection, the mag-

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ACCESSION NR: AR4014746

netic drum is used only to store the total information coming from the input unit of the intermediate memory. To this end, an electrostatic storage-tube memory is used, which has a much larger capacity compared with other systems. The analyzer employs a new method of matching the intermediate and main memory units. The advantages and shortcomings of such an analyzer are analyzed in detail. The question of further increase in the number of channels in a time analyzer of this type is discussed. L. S.

DATE ACQ: 24Jan64 SUB CODE: PH, SD ENCL: 00

Card 2/2

ACCESSION NR: AR4014748 S/0058/63/000/012/A021/A021

SOURCE: RZh. Fizika, Abs. 12A205

AUTHORS: Grashin, Yu. M.; Yefremenko, V. I.; Finogenov, K. G.; Tsitovich, A. P.

TITLE: Pulse height analyzer using solid acoustic delay line

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2, Ch. 2. Gosatomizdat, 1963, 163-172

TOPIC TAGS: analyzer, pulse height analyzer, acoustic delay line, solid delay line, delay line, time correlated signal, nuclear instrumentation

TRANSLATION: A 64-channel pulse-height analyzer using a solid delay line is described. The analyzer circuit contains several elements to extend its operating capabilities. The input unit has two ampli-

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ACCESSION NR: AR4014748

fier channels, a coincidence circuit, and a transmission circuit, making it possible to separate and investigate time-correlated signals. The information accumulated in the memory can be picked off the screen of the monitor tube in binary or linear form, and can also be extracted channel by channel by means of a special binary-to-decimal conversion circuit. The analyzer resolution time is 1 millisecond. The analyzer is immune to interference and stable in operation. L. S.

DATE ACQ: 24Jan64 SUB CODE: PH, SD ENCL: 00

Card 2/2

TSITOVICH, A.P.

Multichannel analyzers with memory systems recording the information on a magnetic surface; review. Prib. i tekh. eksp. 8 no.5:5-22 S-O '63. (MIRA 16:12)

1. Institut atomnoy energii AN SSSR.

ACCESSION NR: AR4023769 S/0274/64/000/001/A082/A082

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 1A542

AUTHORS: Grashin, Yu. M.; Yefremenko, V. I.; Finogenov, K. G., Tsitovich, A. P.

TITLE: Pulse height analyzer with solid acoustic delay line

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 2. Gosatomizdat, 1963, 163-172

TOPIC TAGS: pulse height analyzer, delay line, acoustic delay line, solid delay line, magnesium delay line, delay line memory, time correlated signal

TRANSLATION: A 64-channel pulse-height analyzer is described with a memory system operating with an ultrasonic delay line. The latter is made of magnesium. The resolution time of the analyzer is 1

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ACCESSION NR: AR4023769

microsecond. The analyzer input unit contains two amplifier channels with non-overloading amplifiers. A coincidence circuit and a transmission circuit are provided to separate the time-correlated signals. The information stored in the memory can be picked off the screen of a cathode ray tube using a double or a linear system. The information can also be extracted channel by channel with the aid of a binary-decimal converter. The operation of the main circuit units of the analyzer is described. The analyzer is in operation since the middle of 1959 and is both stable in operation and immune to noise. Bibliography, 4 titles. I. B.

DATE ACQ: 03Mar64 SUB CODE: PH, SD ENCL: 00

Card 2/2

ACCESSION NR: AR4023767 S/0274/64/000/001/A082/A082

SOURCE: RZh. Radiotekhnika i elektrosvyaz', Abs. 1A540

AUTHORS: Tsitovich, A. P.; Bochkov, G. T.; Istomin, D. A.; Sotnikov, S. K.

TITLE: 2048 channel time analyzer

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 2. M., Gosatomizdat, 1963, 72-95

TOPIC TAGS: time analyzer, multichannel time analyzer, 2048 channel time analyzer, magnetic drum memory, electrostatic storage tube, intermediate memory, main memory logic, analog circuitry

TRANSLATION: A magnetic-drum analyzer memory is described. Since the magnetic drum is a relatively "slow" element, it stores the total information fed from the intermediate memory. The latter is made

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ACCESSION NR: AR4023767

up of a single electrostatic storage tube, on which the signals fed from the input unit are written and read-out. The writing and reading is in sequence over a 2048 element raster, which is scanned by the electron beam of the tube. The deflection of the beam is followed-up by a special circuit which guides it over the pointlike raster. The circuits of the intermediate memory, the main memory logic, the analog circuit, and the information readout circuit are described. Questions connected with improving the resolution and increasing the number of channels (for a multidimensional analyzer for 16,000 channels) are considered. Bibliography, 5 titles. I. B.

DATE ACQ: 03Mar64 SUB CODE: PH, SD ENCL: 00

Card 2/2

TSITOVICH, A.P.; ZAYTSEV, Yu.I.

Static memory system for an amplitude analyzer recording the information on a magnetic surface. Prib. i tekh. eksp. 8 no. 5:82-89 S-O '63. (MIRA 16:12)

1. Institut atomnoy energii AN SSSR.

TSITOVICH, A.P.; SOTNIKOV, S.K.

[Matrix time-delay analyzer with commutators on memory capacitances for a mechanical neutron selector] Matrichnyi vremennoi analizator s kommutatorami na emkostiakh pamiati dlia mekhanicheskogo neitronnogo selektora. Moskva, In-t atomnoi energii, 1960. 18 p. (MIRA 17:1)

ACCESSION NR: AP4006818 S/0120/63/000/006/0055/0060

AUTHOR: Mostovaya, T. A.; Mostovoy, V. I.; Osochnikov, A. A.; Tsitovich, A. P.

TITLE: Measurement of the mass distribution of heavy fission fragments using a pulse-amplitude analyzer

SOURCE: Pribory* i tekhnika eksperimenta, no. 6, 1963, 55-60

TOPIC TAGS: ionization chamber, pulse-amplitude analyzer, fission fragment, fission fragment mass, fragment, mass distribution, thermal neutron fission, heavy nucleus fission, thermal neutron, heavy nucleus, nuclear fission, fission

ABSTRACT: An instrument that can measure the height ratio of two pulses formed in an ionization chamber by fission fragments is described. Layers of fissionable material 10-15 microgr/cm^2 thick were placed on the central electrode of an ionization chamber filled with 95% Ar and 5% CO_2. The chamber

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ACCESSION NR: AP4006818

performance was checked by measuring the spectra of alpha particles and fission-fragment energy of an U^{235} layer. The pulse-height-ratio analyzer is based on recording pulses on a two-beam-tube screen operating as a memory tube. The recording beam is activated when the pulses reach their maximum height; the spiral-scanning readout beam measures the pulse-height ratio by a time difference between two appropriate pulses. The analyzer comprises a recording unit and a readout unit, both connected with the cathode-beam tube. One beam records two simultaneous fragment-generated pulses as a dot on the screen; the other beam reads the dot and sends information into the appropriate channel of the time analyzer, depending on the fragment-mass ratio. A frequency-and-amplitude-stabilized sine-wave RC-oscillator generates 1,300-1,500 cps for the readout scheme. The pulse-height-ratio analyzer can handle up to 30 pulses per sec. It was tested by measuring the fragment-mass distribution of U^{235} fission by thermal neutrons. The joint resolution of the ionization chamber with the analyzer, measured as a ratio of the peak-to-valley ordinates on the mass-yield curve, is found to be 330 ± 55. It can be improved by reducing

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ACCESSION NR: AP4006818

the energy loss in the layer and the backing, and by improving the characteristics of the linear amplifiers and the ratio analyzer. "V. A. Smolin took part in the early period of the project." Orig. art. has: 5 figures and 4 formulas.

ASSOCIATION: none

SUBMITTED: 19Nov62 DATE ACQ: 24Jan64 ENCL: 00

SUB CODE: NS, AS NO REF SOV: 002 OTHER: 006

Card 3/3

TSITOVICH, A.P.

[Solution of some problems of time and amplitude analysis of pulses using special memory devices] Reshenie nekotorykh voprosov vremennogo i amplitudnogo analiza impul'sov s pomoshch'iu spetsial'nykh ustroistv pamiati. Moskva, In-t atomnoi energii, 1960. 15 p. (MIRA 17:2)

[256-channel time analyzer with memory system using two-beam tubes and a magnetic drum] 256-kanal'nyi vremennoi analizator s ustroistvom pamiati na dvukhluchevykh trubakh i magnitnom barabane. Moskva, In-t atomnoi energii, 1960. 30 p. (MIRA 17:2)

41437
S/120/62/000/005/011/036
E192/E382

24.6500

AUTHORS: Golovin, A.Ye., Zemlyanov, M.G., Tsitovich, A.P. and Chernoplekov, N.A.

TITLE: A system of time delays based on magnetostrictive lines for transit-time neutron spectroscopy

PERIODICAL: Pribory i tekhnika eksperimenta, no. 5, 1962, 77 - 79

TEXT: In comparison with univibrators for phantastrons, magnetostrictive lines have the advantage that delays produced by them can be accurately varied over a wide range. The system of delays for the transit-time neutron spectroscope is based on such lines. These are in the form of nickel wire passing through the axes of two coils. One of the coils receives a current pulse when a neutron is recorded by a group of counters associated with the line; the second coil then produces a delayed signal. The delay time is varied by shifting one coil relatively to the other. The whole delay system is based on four magnetostrictive lines and its block diagram is shown in Fig. 1. The signal from each group of counters is amplified, passed through the

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discriminator, then suitably shaped and applied to the delay line (see Fig. 1). The signal has a rise time of 0.5 μs at the output of the line and this is applied to the shaping circuit of the next groups of counters and so on. As a result of this operation, the signals at the output of the system appear with various delays 4τ, 3τ, 2τ and τ, where τ is the delay of one line. The lines are in the form of four parallel strings and all the four coils can be shifted simultaneously. The diameter of the nickel string is 0.5 mm and its operating length is 30 cm, so that its maximum delay is 60 μs. The transmitting coil has 300 turns and the receiving coil 500 turns. Both coils are screened magnetically. The resolution of the neutron spectrometer with a mechanical switch can be increased by about 2.5 times by using this delay system. There are 3 figures.

ASSOCIATION: Institut atomnoy energii AN SSSR (Institute of Atomic Energy of the AS USSR)

SUBMITTED: December 16, 1961

TSITOVICH, A.P.

The 256-channel time analyzer with a storage equipment. Prib.i tekh. eksp. 7 no.1:65-77 Ja-F '62. (MIRA 15:3)

1. Institut atomnoy energii AN SSSR.
(Electronic instruments)(Magnetic memory(Calculating machines))

TSITOVICH, A.P.; SOTNIKOV, S.K.

Matrix time analyzer with commutators on storage capacities.
Prib.i tekh.eksp. 7 no.1:78-85 Ja-F '62. (MIRA 15:3)

1. Institut atomnoy energii AN SSSR.
(Electronic instruments)

S/120/62/000/001/016/061
E140/E463

AUTHOR: Tsitovich, A.P.

TITLE: 256-channel time analyser with memory system

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 65-77

TEXT: The analyser described is intended for a transit-time neutron spectrometer and operates either with an accelerator or a mechanical neutron selector. The main memory is a drum with recirculation, with an intermediate electrostatic memory using four double-beam tubes. One beam is used for writing, the other for reading, to permit random registration of events but systematic storage on the drum. The minimum channel width is 0.5 μs. The double-beam tubes are employed with two independent 8 x 8 point staircase rasters, one at high speed for the storage of input data, the other synchronized to the drum for transfer to the main memory. The drum rotates at 3000 rpm so that one drum memory cycle is completed in 0.02 sec. There are four tracks, each with 64 channels of 13 bits each, in binary system. The output from the drum can be by selection of individual channels, which are read out in the decimal system by a dekatron circuit, or

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236-channel time analyser ...

in binary code on the screen of a monitor tube. The entire spectrum can also be read out on a monitor screen in linear (analog) form. The article describes in detail the circuits and principles employed for the fast memory and the drum memory, the output control circuit and the binary-decimal conversion circuit. The output process takes several seconds for each channel. Vacuum-tube and gas-tube circuits are used throughout. There are 18 figures.

ASSOCIATION: Institut atomnoy energii AN SSSR
(Institute of Atomic Energy AS USSR)

SUBMITTED: June 30, 1961

Card 2/2

S/120/62/000/001/017/061
E140/E463

AUTHORS: Tsitovich, A.P., Sotnikov, S.K.

TITLE: Matrix time analyser using capacitive memory switching

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 78-85

TEXT: In matrix spectrum analysers the storage coordinates are selected by switches which are generally controlled by bistable circuits (flip flops). To obtain high speed (high channel resolution, low minimum channel width) it becomes necessary to utilize complicated flip flop circuits with large numbers of tubes and hence low reliability. The authors propose to use a capacitive memory shift register in which a charge is shifted from condenser to condenser through a circuit consisting of two diodes and a triode amplifier, controlled by a two-phase pulse sequence. The charge is shifted at each cycle from an odd to an even numbered condenser or vice versa. Without difficulty the authors bring the minimum channel width to 2 μs, with special care to 0.6 μs. A block diagram of the analyser and detailed circuits of the capacitive memory shift register, input circuits, switching circuits and storage matrices are presented and discussed.

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S/120/62/000/001/017/061
E140/E463

Matrix time analyser ...

The analyser is designed to operate with magnetic heads for detecting neutrons in a mechanical neutron selector. Two models have been built and put into operation. In one there are four matrices, two for measuring the "effect" (128 channels) and two for measuring "background" (32 channels). The second model has two matrices of 128 channels each. The output is to a mechanical recorder type СБ-1(М) (SB-1(M)), which appears to be the main source of unreliability in the system. It is planned to replace the mechanical counter with decade counting circuits. Vacuum tube and diode and crystal diode circuits are used throughout. There are 10 figures.

ASSOCIATION: Institut atomnoy energii AN SSSR
(Institute of Atomic Energy AS USSR)

SUBMITTED: June 30, 1961

Card 2/2

MOSTOVOY, V.I.; PEVZNER, M.I.; TSITOVICH, A.P.

[Mechanical neutron velocity selector] Mekhanicheskii selektor neitronov. Moskva, 1955. 24 p.
(Neutrons—Measurement) (MIRA 14:7)

TSITOVICH, A. P., MONTROVOY, V. I., and PEVZNER, A. I.

"The Mechanical Neutron Velocity Selector," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

TSITOVICH, A.P.

Amplitude analyzers based on electron-ray tubes. Prib.i tekh. eksp. no.4:40-50 Jl-Ag '58. (MIRA 11:9)
(Pulse techniques (Electronics)) (Nuclear counters)

L 9426-66 EWT(m)/EPF(n)-2/EWA(h)

ACC NR: AT5022303 UR/3136/64/000/697/0001/0003

AUTHOR: Bespalov, O.G.; Mostovaya, T.A.; Tsitovich, A.P. 42 40 B+1

TITLE: Neutron time-of-flight correction in a multistage detector

SOURCE: Moscow. Institut atomnoy energii. Doklady, IAE-697, 1964. Korrektsiya vremeni proleta neytronov v mnogosektsionnom detektore, 1-8

TOPIC TAGS: neutron detector, neutron beam

ABSTRACT: The time of flight of a neutron in a fission chamber composed of several stages is investigated. The multistage design improves the yield but decreases the resolution of spectrometer. The influence of the increased length of the multistage detector can be corrected by delaying pulses in each section. The authors discuss the method of time correction by means of a variable delay line designed for 128 lags and divided in 4 sections. The experiments were carried out with a five-sectional fission chamber. The use of this method for measurements of the U^{235} fission cross-section is also briefly discussed. A linear electron accelerator of the Kurchatov Institute of Atomic Energy was used for these experiments. The authors express their gratitude to I.I. Mostovoy who initiated this research and to M.I. Pevzner for his attention. Orig. art. has: 5 connection diagrams and 2 graphs.

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L 9426-66 2

ACC NR: AT5022303

ASSOCIATION: Institut atomnoy energii im. I.V. Kurchatova (Institute of Atomic Energy) 35

SUBMITTED: 00 ENCL: 00 SUB CODE: NP

NO REF SOV: 002 OTHER: 000

Card 2/2 ddo

L 6960-66 EWT(d)/EWP(1) IJP(c) GG/BB

ACC NR: AT5022297 UR/3136/64/000/696/0001/0014

48
B11

AUTHOR: Tsitovich, A. P. 44

TITLE: Multichannel registering system on flexible magnetic discs with floating heads

SOURCE: Moscow. Institut atomnoy energii. 44 Doklady, IAE-696, 1964. Mnogokanal'naya registriruyushchaya sistema na gibkikh magnitnykh diskakh s plavayushchimi golovkami, 1-14

TOPIC TAGS: magnetic drum, magnetic core storage, magnetic tape, computer memory, binary logic, neutron spectrometry 16,44

ABSTRACT: The disc memory is much simpler to operate than the drum memory and it also eliminates tape storage disadvantages. The flexible disc revolves above a resistive plate which is connected to a motor drive and a valve controlling the air flow. This allows a stabilization of the disc up to several thousand rpm. Magnetic head gaps of 5 to 10 microns were used successfully allowing high density storage of information (5 and 10 impulses per mm). Various diameter discs were studied (usually about 280 mm). Up to 10,000 channels were recorded with one set of

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L 6960-66
ACC NR: AT5022297

heads. Mechanical and electrical diagrams are given for the basic design of the system. Also oscillogram test pulses and a physical picture of the system are shown. The binary logic of the system is described in relating the system to several neutron time of flight spectrometers. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00

NO REF SOV: 009 OTHER: 000

Card 2/2

AUTHORS: Tsitovich, A. P., Yefremenko, V. I.

TITLE: A Memory Device for the Observation of Single Processes on a Cathode Oscillograph (Zapominayushcheye ustroystvo dlya nablyudeniya odnokratnykh protsessov na katodnom ostsillografe)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 3, pp 58-61 (USSR)

ABSTRACT: It is well known that an electron beam produces charges on the screen as a result of secondary emission. This is the so-called "potential trail" of the motion of the beam. Due to the fact that the screen is a good insulator, and is in a vacuum, these charges remain on the screen for a few seconds or even minutes. The presence of the charges at any given point may be detected by firing at it an electron beam. As a result, there is movement of charges and an electrode placed in front of the screen will pick up a signal. This is the method employed in the present device. A double beam tube is used. One of the beams is used to produce a trace on the screen which corresponds to the process under investigation, and the other is used in the process of subsequent recording on a magnetic drum. The second beam scans the screen along a television grid. When

A Memory Device for the Observation of Single Processes on a Cathode Oscillograph

the second beam intercepts the potential trail produced by the first beam, the electrode just outside the screen picks up the signal. The signal is amplified, shaped and recorded on a magnetic drum. The process can be reversed so that a signal recorded on the drum can be made to reappear on the screen of the oscilloscope. The circuit of the instrument is shown in Fig.4 and a photograph of the magnetic drum in Fig.3. The problem was suggested by A. A. Naumov. The magnetic drum was made by M. A. Grigor'yev. There are 7 figures and 2 Soviet references.

SUBMITTED: August 29, 1957.

1. Cathode ray oscillographs--Equipment 2. Cathode ray oscillographs--Applications 3. Magnetic recording systems--Applications 4. Electron beams--Applications

SOV/120-58-4-9/30

AUTHOR: Tsitovich, A. P.

TITLE: An Amplitude Analyzer Based on a Cathode-Ray Tube (Amplitudnyy analizator na elektronno-luchevoy trubke)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 4, pp 40-50 (USSR)

ABSTRACT: The instrument is based on the principle of the amplitude-pulse duration transformation and on a computing device with a cathode-ray tube memory. The device is shown diagrammatically in Fig.1. It consists of: 1) a memory device and 2) an input unit in which the amplitude of the investigated pulse is transformed into the pulse duration. All the timing processes of the instrument are controlled by a timing generator in the memory unit; the basic operating cycle T of the generator is 20 μs . During this cycle the electron beam traces a point-type raster on the screen of the tube. The raster is formed by means of a linear sawtooth time base (in the horizontal direction) and by a step-wise time base in the vertical direction. During one cycle the ray traces

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An Amplitude Analyzer Based on a Cathode-Ray Tube

49 lines, each line corresponding to 1 channel of the analyzer. The investigated pulse, which is applied to the input unit, is first stored until the commencement of a new frame, after which the amplitude-duration transformation takes place. The transformation is such that the duration of the output pulse t is proportional to the amplitude of the investigated pulse, A. The storage of the resulting signals is effected in corresponding lines (channels) on the screen of the cathode-ray tube. The memory system is based on the "circle-dot" system (see Ref 6). In this technique each element of the raster represents zero if the ray traces a small circle. In order to produce the required time base the plates of the tube are supplied with high frequency voltages; the voltages applied to the 2-plate systems differ in phase by 90°. The recording of a "unity" is done by directing the ray into the centre of the circle. Each line of the raster is divided into two unequal parts (see Fig 3a). In the lower part of the line, the incoming signals are recorded in the binary system. The area occupied by the bright points in the upper part of the raster gives a representation of the measured spectrum in linear co-ordinates. The exact number of pulses in a given channel can be read

An Amplitude Analyzer Based on a Cathode-Ray Tube

directly by observing the position of the last bright spot in the upper part of the line. If the upper part of the line consists of m elements, the capacity of a single channel is $m \times 2^n + (2^n - 1)$, where n is the number of the memory elements. Thus, for example, if $n = 10$ and $m = 41$ the channel capacity is more than 40 000. The constructional details of the instrument are discussed and detailed circuit diagrams of the memory and input units are shown. The circuit diagram of the timing generator and the time-base generators is shown in Fig.5, while the waveforms produced by this unit are illustrated in Fig.6. The memory device contains also a control unit; the circuit diagram of this is shown in Fig 7 while the waveforms generated by it are illustrated in Fig 8. The input unit and its waveforms are illustrated in the diagrams of Figs 11 and 12. Fig 13 gives the amplitude characteristic of the input unit. The analyzer was used in a number of investigations on radioactive isotopes. The results are shown in the photograph of Fig 14a and b. These represent the α-spectrum of a target containing U^{233} Pu^{239} and Am^{241}; Fig 14a represents a linear-type recording while Fig 14b was taken in binary units. The instrument can be

An Amplitude Analyzer Based on a Cathode-Ray Tube

modified so as to be capable of operating with 147 "binary" channels; in this case the device is suitable for observing the envelope of a spectrum. For this purpose the instrument should be fitted with an ancillary unit. The detailed circuit diagram of this unit is shown in Fig. 16 and its operation is illustrated by the waveforms of Fig. 17. The application of the device to the recording of the spectral envelopes is illustrated by Figs. 18 which show the γ -spectrum of Cs in: a) binary units, and b) in the integrated form (the envelope). The paper contains 18 figures and 7 references, of which 5 are English and 2 Soviet.

SUBMITTED: October 4, 1957.

[illegible], A. P., [illegible], Yu. B., [illegible], [illegible], B. A., [illegible], V. S., [illegible], V. I., [illegible], L. E., and [illegible], N. A.

"Fission and Total Cross-Sections of Some Heavy Nuclides for Monochromatic Neutrons as Measured by a Mechanical Neutron Velocity Selector," a paper presented at the Atoms for Peace Conference, Geneva, Switzerland, 1955

NEDOSTUP, G.A.; PROKOF'YEV, F.N.; KHOLIN, A.I.; TSITOVICH, A.P.

Use of differential gamma spectrometry in petroleum geology.
Prikl. geofiz. no.23:193-201 '59. (MIRA 13:1)
(Oil well logging, Radiation)

15-1-10-12 H.P.

3(5,6) PHASE I BOOK EXPLOITATION SOV/2899

Vsesoyuznyy nauchno-issledovatel'skiy institut geofizicheskikh metodov razvedki

Prikladnaya geofizika; sbornik statey, vyp. 23 (Applied Geophysics; Collection of Articles, No.23) Moscow, Gostoptekhizdat, 1959. 242 p. 3,500 copies printed.

Ed.: M.K. Polshkov; Exec. Ed.: N.N. Kuz'mina; Tech. Ed.: A. S. Polosina.

PURPOSE: This book is intended for scientific, engineering, and technical personnel of industrial geophysical exploration services.

COVERAGE: This is a collection of 14 articles by various authors on aspects of geophysical exploration. The material treated in the articles may be divided into four categories: the physical properties of rocks in specific geological regions, methods and techniques used in industrial geophysical exploration, concepts in the theory of electrical exploration, and the economics involved in geophysical operations. Specifically, the authors discuss the geologic structures of the central parts of the Russian Platform, southwestern Turkmenia, the West Siberian Plains, the eastern part of the Siberian Platform, and the Minusinsk basins; electrical frequency sounding, neutron logging, gamma spectrometry techniques, and the standard equipment and installations of the geophysical services of the petroleum industry in the USSR. References accompany each article.

AVAILABLE: Library of Congress

Card 4/4

RM/bg
12-21-59

SOV/120-59-4-49/50

AUTHOR: Tsitovich, A. P.

TITLE: An International Colloquium on Nuclear Electronics Held in Paris (A Review of Papers)

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 159-160 (USSR)

ABSTRACT: A colloquium on nuclear electronics was held in Paris between September 16 and 20, 1958, and dealt with electronic methods and equipment for use in experimental nuclear physics. The colloquium was organized by the French Association of Radio Engineers. About 500 electronics and experimental physics specialists took part in the colloquium. The Soviet Union was represented by a delegation composed of Professor I. Kh. Nevyazhskiy, and scientific workers from the Academy of Sciences of the USSR: R. M. Voronkov, V. F. Trubetskoy and A. P. Tsitovich. Professor V. V. Migulin from the USSR also took part in the colloquium. About 90 papers were presented. They were divided by subject into nine sections:

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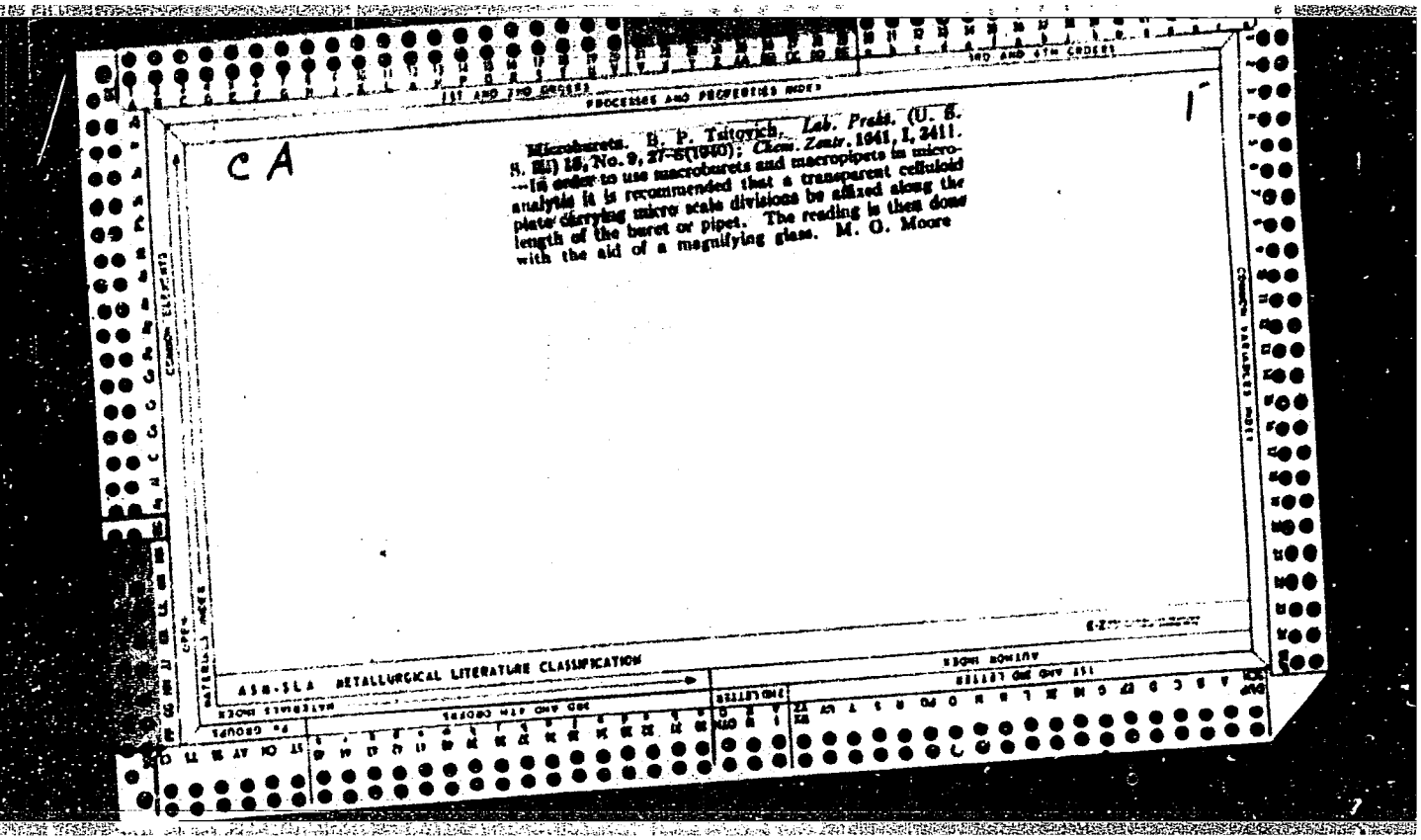
SOV/120-59-4-49/50

An International Colloquium on Nuclear Electronics Held in Paris (A Review of Papers)

1) scintillation detectors;
2) ionization detectors and γ-spectrometers;
3) millimicrosecond technique;
4) classical pulse technique;
5) electronics for reactor control;
6) electronic modelling of reactors;
7) dosimetric apparatus;
8) treatment of the experimental results;
9) use of transistors and standardization of the apparatus.

The present note reviews very briefly the most interesting papers and communications.

Card 2/2



CA

Microburets. B. P. Tutorich. *Lab. Prakt.* (U. S. S. R.) 15, No. 9, 27-8(1940); *Chem. Zentr.*, 1941, I, 2411. —In order to use microburets and micropipets in micro-analysis it is recommended that a transparent celluloid plate carrying micro scale divisions be affixed along the length of the buret or pipet. The reading is then done with the aid of a magnifying glass. M. O. Moore

IOFFE, B.V.; TSITOVICH, D.D.

New method of synthesizing pyrazolines. Condensation of tertiary acetylene chlorides with hydrazine. Dokl. AN SSSR 155 no.6: 1348-1351 Ap '64. (MIRA 17:4)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova. Predstavleno akademikom A.N.Nesmeyanovym.

SERGEYEVA, Z.I.; TSITOVICH, D.D.; VORONKOV, M.G.

New reaction of trialkylsilanes with aliphatic monocarboxylic acid chlorides in the presence of aluminum chloride. Dokl. AN SSSR 134 no.6:1371-1373 O '60. (MIRA 13:10)

1. Institut khimii silikatov Akademii nauk SSSR i Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova. Predstavleno akademikom A.V. Topchiyevym.

(Silane) (Chlorides)

IOFFE, B.V.; TSITOVICH, D.D.

Synthesis of pyrazolines from acetylenic chlorides and hydrazine. Zhur.ob.khim. 33 no.10:3449 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

IOFFE, B.V.; SERGEYEVA, Z.I.; TSITOVICH, D.D.

Propargyl rearrangement of a new type. Zhur.ob.khim. 33 no.10: 3448 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

IOCHEV, S.; TSITOVICH, D.

Possibility of amidine rearrangement of aldehydearylhydrazones passing through intermediate decomposition in amines and nitriles. Doklady BAN 17 no.8:737-740 '64.

1. Department of Radiation Chemistry of the Radiobiological Institute, Sofia, Box 673, Bulgaria, and Faculty of Chemistry of the Leningrad State University, U.S.S.R. Predstavleno chl.-korr. A.Spasovym.

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77921
SOV/79-30-2-72/78

AUTHORS: Sergeyeva, Z. I., Tsien Sing-Chan, Tsitovich, D. D.

TITLE: Letters to the Editor. Synthesis of Alkyl- and Dialkyl-bis-(1, 1-dialkyl-hydrazino)-Silanes

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp pp 694-695 (USSR)

ABSTRACT: Diethyl- and dimethyldichlorosilanes react with unsymmetrical diethyl- and dimethylhydrazines to form the following compounds: (see Table A) These compounds react vigorously with water, ethanol, and dry HCl; they are also strong reducing agents.

ASSOCIATION: Leningrad State University (Leningradskiy gosudarstvennyy universitet)

SUBMITTED: September 23, 1959

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Letters to the Editor. Synthesis of Alkyl- and Dialkyl-bis-(1, 1-dialkyl--hydrazino)-Silanes

77921
SOV/79-30-2-72/78

Table A.

		b. p. (mm Hg)	n_D^{20}	d_4^{20}	Yield (%)
1	$(C_2H_5)_2Si[NHN(C_2H_5)_2]_2$	129.5—130° (14)	1.4530	0.8673	59.6
2	$(CH_3)_2Si[NHN(C_2H_5)_2]_2$	104.8—105 (14.5)	1.4419	0.8594	35.5
3	$(C_2H_5)_2Si[NHN(CH_3)_2]_2$	85 (12)	1.4415	0.8648	58.7
4	$(CH_3)_2Si[NHN(CH_3)_2]_2$	62 (22)	1.4298	0.8504	58.4
5	$C_2H_5SiH[NHN(CH_3)_2]_2$	75 (22)	1.4392	0.8645	58.0
6	$CH_3SiH[NHN(CH_3)_2]_2$	44—45 (9—10)	1.4348	0.8676	11.0
7	$CH_3SiH[NHN(C_2H_5)_2]_2$	102—103 (18—19)	1.4440	0.8636	18.0

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81674

S/020/60/134/006/019/031
B016/B067

5.3700 2209, 1318, 1312 only

AUTHORS: Sergeyeva, Z. I., Tsitovich, D. D., and Voronkov, M. G.

TITLE: A New Reaction of Trialkyl Silanes with Acid Chlorides of Aliphatic Monocarboxylic Acids in the Presence of Aluminum Chloride

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 6, pp. 1371-1373

TEXT: In the presence of $AlCl_3$ alkyl halides are easily reduced from trialkylsilanes to the corresponding hydrocarbons (Refs. 1,3) whereas acid chlorides of aromatic acids are reduced to aldehydes (Ref. 4). This reaction proceeds according to the general scheme:

$$R_3SiH + R'X \xrightarrow{AlCl_3} R_3SiX + R'H$$

where R' is a carbon- or acyl radical and X a halogen. The authors studied this reaction by applying it to the acid chlorides of the aliphatic monocarboxylic acids. They studied the reduction of the acid chlorides of

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84574

A New Reaction of Trialkyl Silanes With Acid Chlorides of Aliphatic Monocarboxylic Acids in the Presence of Aluminum Chloride

S/020/60/134/006/019/031
B016/B067

acetic, n-butyric, trimethyl acetic, and β-trimethyl silyl propionic acid by means of triethyl silane. In this connection it was found that in the absence of $AlCl_3$ practically no interaction of the reagents occurred. If, however, catalytic amounts of $AlCl_3$ (2-3 mol%) were introduced into the reaction mixture strong heating was observed. In contrast to what had been expected and to the data of Ref. 4 the corresponding aldehydes were not formed although the initial triethyl silane was converted into triethyl chlorosilane with a yield of 66-92%. Corresponding esters which were isolated in good yields proved to be the reaction products of the acid chlorides. These results make it possible to express the new reaction discovered by the authors by the following equation:

$$2R_3SiH + 2R'COCl \xrightarrow{AlCl_3} 2R_3SiCl + R'COOCH_2R',$$

where R = C_2H_5, R' = CH_3, n-C_3H_7, $(CH_3)_3C$, $(CH_3)_3SiCH_2CH_2$. The mechanism of this reaction could not be definitely determined. Apparently an intermediate reduction of the acid chloride to a corresponding aldehyde takes

Card 2/3

A New Reaction of Trialkyl Silanes With Acid Chlorides of Aliphatic Monocarboxylic Acids in the Presence of Aluminum Chloride

84674

S/020/60/134/006/019/031
B016/B067

place which reacts with the acid chloride excess according to the following scheme:

$$R_3SiH + R'COCl \longrightarrow R'CHO + R_3SiCl,$$

$$R'CHO + R'COCl \longrightarrow R'COOCHClR' \quad \text{(described in Ref. 9)}$$

$$R'COOCHClR' + R_3SiH \longrightarrow R'COOCH_2R' + R_3SiCl.$$

The possibility of a direct ester condensation of the aldehydes formed cannot be excluded. Table 1 gives the reaction products obtained. There are 1 table and 10 references: 2 Soviet, 1 US, 1 Danish, 2 Belgian, 3 French, and 1 German.

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Silicate Chemistry of the Academy of Sciences, USSR). Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

PRESENTED: June 3, 1960, by A. V. Topchiyev, Academician

SUBMITTED: June 13, 1960

Card 3/3

[illegible], L. . .

Dissertation: "Methods for Technical and Economic Analysis of Construction Machines." Cand Tech Sci, Moscow Engineering Economics Inst Imeni Sergo Ordzhonikidze, 7 Mar 54. (Vechernyaya Moskva, Moscow, 28 Apr 54)

SO: SUM 243, 19 Oct 1954

TSITOVICH, I. K.; LAPINA, T. A.

Use of cation exchangers in the form of salts for removing foreign anions in the determination of nitrates. Zhur. VKHO 7 no.5:579-580 '62. (MIRA 15:10)

1. Kubanskiy sel'skokhozyaystvennyy institut.

(Nitrates) (Ion exchange)

TSITOVICH, I. K.

PA 61T71

USSR/Medicine - Insecticides Jan 1948
Medicine - Sodium Nitrite

"Use of Sodium Nitrite as an Insecticide," I. K. Tsitovich, 3 pp

"Sovetskaya Agronomiya" No 1

Spraying with 5% solution of sodium nitrite at rate of 500 cu cm on 1 sq m is new method of employing liquid disinfectant for granaries infested by certain insects. Fumigation of empty granaries with nitrogen peroxide effectively kills certain types of insects, using 200 grams of sodium nitrite per cubic meter of the building and 600 cu m diluted (1:5) industrial sulfuric acid.

61T71

TSITOVICH, I. K. I. SNITKO, YU. S.

26564 Novyy metod obezzarazhivaniya plodov ot kaliforniyskoy shchitovki. Sad i ogorod, 1949, No. 8, s. 35-36.

SO: LETOPIS' NO. 35, 1949

USSR/Biology - DDT Jan 50
Insectology

155T6

"Relationship of Generation Phase of the Destructive Eurygaster (Eurygaster Integriceps Put.) to DDT," I. K. Tsitovich, Yu. S. Snitko, Krasnodar Kray Experimental Sta for Plant Protection, 3 pp

"Dok Ak Nauk SSSR" Vol LXX, No 1

Many authors have shown resistance of various insects to DDT depends on seasonal dynamics of physiological stages; thus, insects of same genus but in different stages of development will be affected differently by DDT. Reports results of studies conducted on

[redacted]

155T6

USSR/Biology - DDT (Contd) Jan 50

Eurygaster integriceps Put. to determine effect of DDT at various development stages. Finds DDT is most effective against larvae. Submitted by Acad L. A. Orbeli 5 Sep 49.

155T6

TSITOVICH, I. K.

[redacted]

USSR/Biology (Agriculture) - Herbicides Jul/Aug 51

"Introduction of Insecticides Into the Soil," I. K. Tsitovich, Krasnodar Exptl Sta of Plant Protection

"Agrobiol" No 4, pp 129-132

Since the USSR industry began to supply synthetic org herbicides, sterilization of the soil with them before planting useful crops became possible. Expts with Na salt of 2,4-dichlorophenoxyacetic acid (2,4-DU), Na salt of 2-methyl-4-chlorophenoxyacetic acid (2M-4Kh), and Na dinitroorthocresolate (DINOK) have been carried out. Results of expts show that

207T2

USSR/Biology (Agriculture) - Herbicides Jul/Aug 51 (Contd)

upon introduction of 3 kg/hectare into the soil of a field which has not been planted, 2,4-DU or 2M-4Kh reduce the number of weeds by a factor of 2-3. Introduction of any of the 3 synthetic herbicides into the soil is less effective than spraying of weeds with them in a planted field.

207T2

TSITOVICH, I. K.

TSITOVICH, I. K.

USSR/Biology (Agriculture) Nov/Dec 51
Chemistry - Herbicides

"Data on Comparative Tests for the Evaluation of Domestic Herbicides," I. K. Tsitovich, Yu. S. Snitko, Krasnodar Expt Station of Plant Protection

"Agrobiologiya" No 6, pp 129-132

Carried out field tests on the extermination of weeds in wheat fields with 2,4-DU [2,4-dichlorophenoxyacetic acid], 2M-4Kh [2-methyl-4-chlorophenoxyacetic acid] and DiNOK [dichloronaphthoxyacetic acid ?] of

20075

USSR/Biology (Agriculture) Nov/Dec 51
Chemistry - Herbicides
(Contd)

domestic manuf. Found that these products were in no way inferior to imported 2,4-D and methoxone.

20075

BTR

31

9637* **Chemical Weeding of Volunteer Sunflowers in Grass Crops.** (In Russian.) I. K. Tsitovich, *Sovetskaia Agronomiia*, v. 9, Dec. 1951, p. 85-86.

The sodium salts of 2,4-D, 2-methyl-4-chlorophenoxyacetic acid, and dinitro-orthocresol were used in tests for removing volunteer sunflowers in wheat and barley.

Dynamics of the numbers of weeds in plantings treated with herbicides. I. K. Tsitovich and Yu. S. Snitko (Krasnodar Plant Expt. Station). *Doklady Akad. Nauk S.S.S.R.* 77, 449–52(1951).—2,4-D (I), 2-methyl-4-chlorophenoxyacetic acid (II), and Na dinitro-*o*-cresoxide (III) give complete elimination of only the most sensitive weeds (*Ambrosia artemisiaefolia*, *Xanthium strumarium*, *Capsella bursa-pastoris*, *Thlaspi arvense*, *Abutilon avicennae*, and sunflower) when the herbicides are sprayed at a dosage of 0.75–1.5 kg./ha. in 500–1000 l. H_2O. Annuals, as *Chenopodium album* and *Amaranthus retroflexus*, when treated with the above dose of I, redevelop to 20–30% of the original population in about 1.5 months. *Polygonum convolvulus* and *P. aviculare* redevelop but more weakly. Among the perennials, only *Cirsium arvense* failed to reëstablish an above-ground growth in 2 months after the action of I or II. III. is effective on the more sensitive weeds, but has poor activity on the perennials in comparison with I or II.

G. M. Kosolapoff

TSITOVICH, I. K.

USSR/Chemistry - Herbicides 21 Sep 51

"Use of Herbicides by Introducing Them Into the Soil," I. K. Tsitovich, Krasnodar Exptl Sta for Plant Protection

"Dok Ak Nauk SSSR" Vol LXXX, No 3, pp 417-420

When 2,4-dichlorophenoxyacetic acid (2,4-D) or 2-methyl-4-chlorophenoxyacetic acid are used in amts of 3 - 4 kg per hectare by dusting them into the soil, there is a significant herbicidal effect. Dinitroorthocresol is not as effective. Incorporation into the soil is not as effective as spraying.

210T39

TSITOVICH, I.K.

Analiz insektitsidov i fungitsidov
(Analysis of insecticides and fungicides). Moskva,
Goskhomizdat, 1952. 328 p.

SO: Monthly List of Russian Accessions, Vol. 6, No. 1, April 1953

TSITOVICH, I.K. (Krasnodar); PROTASOV, P.N. (Krasnodar); BOYKO, V.F. (Krasnodar)

Acquainting students with chemical means of crop protection. Khim. v shkole no.3:38-44 My-Je '53. (MLRA 6:7)
(Insecticides)

TSITOVICH, I.K.

NAZARCHUK, V.P.; TSITOVICH, I.K. (g. Krasnodar)

Experiments with herbicides in chemistry clubs. Khim. v shkole 10 no.5:58-60 S-O '55. (MLRA 8:11)
(Herbicides)

USSR/ Agriculture - Plant physiology

Card 1/1 Pub. 22 - 49/54

Authors : Tsitovich, I. K.

Title : The effect of 2,4-dichlorophen oxyacetic acid on dicotyledonous and herbaceous plants

Periodical : Dok. AN SSSR 100/3, 587-590, Jan 21, 1955

Abstract : Biochemical data are presented regarding the selective effect of 2,4-dichlorophenoxyzcetic acid on dicotyledonous and herbaceous plants. The external effect of the chemical on tomato and potato plants is explained. Ten USSR references (1951-1953). Tables, graphs.

Institution : The Agricultural Institute, Kuban

Presented by: Academician A. L. Kursanov, November 30, 1954

TSITOVICH, I.K.

Method using ionites for detecting ions in plant materials.
Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.6:846-851 '59.
(MIRA 13:4)

1, Kubanskiy sel'skokhozyaystvennyy institut. Kafedra neorganicheskoy i analiticheskoy khimii.
(Ions)

TSITOVICH, I.K.

Chromatographic separation of titanium and iron by means of cation exchangers. Zhur. prikl. khim. 34 no.1:218-220 Ja '61. (MIRA 14:1)

1. Kafedra neorganicheskoy i analiticheskoy khimii Kubanskogo sel'skokhozyaystvennogo instituta.

(Iron) (Titanium)

TSITOVICH, T.K.

Present state of the methods for the determination of pesticides; a survey. Zhur. anal. khim. 20 no.7:875-888 '65.
(MIRA 18:9)

1. Kuban Agricultural Institute, Krasnodar.

TSITOVICH, I.K.; BANTOV, D.V.

Chromatographic separation of titanium from some elements in oxalate solutions. Zhur.prikl.khim. 38 no.6:1389-1392 Je '65. (MIRA 18:10)

1. Kubanskiy sel'skokhozyaystvennyy institut.

TSITOVICH, I.K.; KONOVALOVA, Ye.A.; TSARICHENKO, B.F.

Salts forms of cation exchangers and the separation of organic acids. Izv. vys. ucheb. zav.; khim. i khim. tekh. 8 no.1:60-64 '65.
(MIRA 18:6)

1. Kubanskiy sel'skokhozyaystvennyy institut, kafedra neorganicheskoy i analiticheskoy khimii.

TSITOVICH, I.K.; BANTOV, D.V.

Sorption by ion exchangers and the possibility of separating transition elements of the fourth period in succinic acid solutions. Zhur. VKHO 10 no.2:228-229 '65. (MIRA 18:6)

1. Kubanskiy sel'skokhozyaystvennyy institut.

RYABCHIKOV, D. I.; TSITOVICH, I. K.; TORPUDZHIYAN, M. K.

Mineral ion exchangers based on titanium. Dokl. AN SSSR 156 no. 1:110-113 My '64. (MIRA 17:5)

1. Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo AN SSSR. Predstavleno akademikom A. P. Vinogradovym.

TSITOVICH, I.K.; LAPINA, T.A.; Prinimala uchastiye: NIKITINA, N.G.

Absorption of cations of heavy metals by anion exchangers from aqueous solutions. Zhur. VKHO. 8 no.5:597-598 '63. (MIRA 17:1)

1. Kubanskiy sel'skokhozyaystvennyy institut.

TSITOVICH, I.K.; CHERKASHIN, V.I.

Use of ion exchangers for the separation of chlorophenoxyacetic acids, their salts, and phenol. Zhur.anal.khim. 18 no.10: 1255-1261 O '63. (MIRA 16:12)

1. Kuban Agricultural Institute, Krasnodar.

TSITOVICH, I.K.; NIKITINA, N.G.

Complex formation by transition elements of the fourth period in citric acid solutions. Izv.vys.ucheb.zav.; khim.i khim.tekh. 6 no.4:567-571 '63. (MIRA 17:2)

1. Kubanskiy sel'skokhozyaystvennyy institut. Kafedra neorganicheskoy i analiticheskoy khimii.

TSITOVICH, I.K.; CHERKASHIN, V.I.

Sorption of chlorophenoxyacetic acids, their salts, and phenol by ion exchangers. Zhur. prikl. khim. 36 no.5:973-977 My '63. (MIRA 16:8)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Acetic acid) (Ion exchange)

TSITOVICH, I.K.; LAPINA, T.A.

State of the transition elements of the fourth period in sulfuric and phosphoric acid solutions. Izv. vys. ucheb. zav.; khim. i khim. tekh. 6 no.3:370-376 '63. (MIRA 16:8)

1. Kubanskiy sel'skokhozyaystvennyy institut, kafedra neorganicheskoy i analiticheskoy khimii.
(Transition metals) (Ion exchangers)

TSITOVICH, I.K.

Use of anion exchangers for separating small quantities of cobalt, nickel, manganese, and copper in their determination in soils. Zhur.anal.khim. 17 no.5:621-626 Ag '62. (MIRA 16:3)

1. Kuban Agricultural Institute, Krasnodar.
(Soil chemistry) (Metals--Analysis) (Ion exchange resins)

TSITOVICH, I.K.

Methods for separating titanium from certain elements of the fourth period by means of anion exchange. Izv.vys.ucheb.zav.;-khim.i khim.tekh. 5 no.2:194-197 '62. (MIRA 15:8)

1. Kubanskiy sel'skokhozyaystvennyy institut, kafedra neorganicheskoy i analiticheskoy khimii.
(Titanium--Analysis) (Ion exchange)

RYABCHIKOV, D.I.; TSITOVICH, I.K.; TORPUDZHIYAN, M.K.

Comparative sorption capacity of transition elements of the fourth period by mineral ion exchangers. Dokl.AN SSSR 145 no.4:825-828 Ag '62. (MIRA 15:7)

1. Kubanskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom A.P.Vinogradovym.

(Transition metals) (Ion exchange)

TSITOVICH, I. K.

PHASE I BOOK EXPLOITATION SOV/6116

Ryabchikov, Dmitriy Ivanovich, and Igor' Konstantinovich Tsitovich

Ionoobmennyye smoly i ikh primeneniye (Ion-Exchange Resins and Their Use). Moscow, Izd-vo AN SSSR, 1962. 185 p. Errata slip inserted. 5000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut geokhimii i analiticheskoy khimii im. V. I. Vernadskogo.

Resp. Ed.: A. P. Vinogradov, Academician; Ed.: M. P. Volynets; Tech. Ed.: I. N. Dorokhina.

PURPOSE: The book is intended for engineers and industrial laboratory personnel in various industries.

COVERAGE: The book, which is intended to give wider circulation to the possibilities of utilizing ionites and ionite processes to radically improve current processes and practices in many industries, contains data and information from the literature on the properties of ion-exchange resins and on their applications in the extraction of precious and rare metals from industrial

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waste, and in the chemical, pharmaceutical, food, and other industries. The references, mainly Soviet with many English and German, are given following each chapter. No personalities are mentioned.

TABLE OF CONTENTS:

TSITOVICH, I.K.; NIKITINA, N.G.

Complex formation in tartaric acid solutions of elements of the mid-fourth period. Dokl.AN SSSR 145 no.3:588-591 Jl '62. (MIRA 15:7)

1. Kubanskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom I.I.Chernyayevym.

(Complex compounds) (Tartaric acid)

RYABCHIKOV, Dmitriy Ivanovich; TSITOVICH, Igor' Konstantinovich; VINOGRADOV, A.P., akademik, otv. red.; VOLYNETS, M.P., red.; DOROKHINA, I.N., tekhn. red.

[Ion exchange resins and their uses] Ionoobmennye smoly i ikh primenenie. Moskva, Izd-vo Akad.nauk SSSR, 1962. 185 p. (MIRA 15:7)

(Ion exchange resins)

TSITOVICH, I.K.

Sorption of elements of the fourth period by the AV-17 anionite exchanger and their chromatographic separation in hydrochloric acid solutions. Zhur. VKhO 6 no.6:711-712 '61. (MIRA 14:12)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Metals--Analysis) (Anion exchange)

TSITOVICH, I.K.

Comparative capacity of elements for sorption by ion exchange resins in hydrochloric acid solutions. Izv.vys.ucheb.zav.;khim.i khim.tekh. 4 no.4:688-691 '61. (MIRA 15:1)

1. Kubanskiy sel'skokhozyaystvennyy institut, kafedra neorganicheskoy i analiticheskoy khimii.
(Sorption) (Ion exchange resins)

S/153/62/005/002/001/004
E075/E435

AUTHOR: Tsitovich, I.K.

TITLE: Possibilities of separation of titanium from some elements of the fourth period with the aid of anion exchange

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya. v.5, no.2, 1962, 194-197

TEXT: Methods were developed for the separation of Ti (IV) from Fe (III), Co (II), Ni (II), Cu (II) and Mn (II) in hydrochloric acid solution, on the basis of data on the relative stabilities of the chloride complexes of the elements. The separations were conducted using strongly basic anion exchanger АБ-16 (AV-16), medium basic resin ЭДЭ-10П (EDE-10P) and weakly basic resin АН-2Ф (AN-2F). Ni was separated from Ti on resin EDE-10P by elution with 12N HCl in which Ni does not form Cl complexes; Ti was eluted with 6N HCl. Similarly, Ni was separated from the other elements which form stable Cl complexes in 12N HCl. Co was eluted with 4N HCl and Cu with 2N HCl after elution of Ti with 6N HCl. Finally, Fe was eluted with 0.1 N HCl; the best

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Possibilities of separation ...

results being obtained when Ti:Fe ratio was 1000:1. For a similar ratio of Ti to Co, the Co eluate contained traces of Ti. The use of resin AV-16 gives better separation than that on resin EDE-10P. It is concluded that the method may find application in the chemical analysis of alloys and biological specimens. There are 4 tables.

ASSOCIATION: Kubanskiy sel'skokhozyaystvennyy institut
Kafedra neorganicheskoy i analiticheskoy khimii
(Kuban Agricultural Institute, Department of
Inorganic and Analytical Chemistry)

SUBMITTED: July 2, 1960

TSITOVICH, I.K.

Using ion-exchange resins for the quantitative analysis of trace elements. Pochvovedenie no.4:107-110 Ap '61. (MIRA 14:6)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Trace elements) (Soils—Analysis)

TSITOVICH, I.K.

Stability of acid chloride complexes in the elements of the fourth peroidic group. Dokl.AN SSSR 136 no.1:114-116 Ja '61. (MIRA 14:5)

1. Kubanskiy sel'skokhozyaystvennyy institut. Predstavleno akademikom I.I.Chernyayevym.
(Complex compounds) (Ion exchange)

TSITOVICH, I.K.

Use of ion exchange resins for determining nitrates in niters. Zhur. prikl.khim. 33 no.10:2362-2364 O '60. (MIRA 14:5)

1. Kubanskiy sel'skokhozyaystvenyy institut.
(Ion exchange resins) (Nitrates)

TSITOVICH, I.K.

Possibilities of separating iron from some elements of the fourth period with the aid of cation exchange in hydrochloric acid solutions. Zhur. VKHO 6 no.2:230-231 '61. (MIRA 14:3)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Iron—Analysis) (Metals—Analysis) (Ion exchange)

TSITOVICH, I.K.

Investigation of the state of titanium in hydrochloric acid solutions by the ion exchange method. Zhur. VKHO 6 no.2:233-234 '61. (MIRA 14:3)

1. Kubanskiy sel'skokhozyaystvennyy institut.
(Titanium) (Ion exchange resins)

S/153/60/003/004/011/040/XX
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TITLE: Microquantitative Determination of Ions by Chromatographic Standards on Aluminum Oxide of the Aluminate Form

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TEXT: A fundamental investigation of the quantitative determination of a substance from the height of its zone in the chromatogram was carried out by M. S. Tsvet (Ref.1) with respect to plant pigments. Ye.N. Gapon and T. B. Gapon (Ref.4) studied the linear relation between the height of the zone and the concentration of the solution in ion-exchange chromatography for the system Cu^{2+} - Co^{2+} on Al_2O_3 in the aluminate form. The author studied the relation between microgram amounts of ions applied onto the column from a constant solution volume and the height of their zone on the chromatograms. Only such quantities of cations and

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anions were applied onto the column, which were quantitatively absorbed by aluminum oxide as a chromatographic adsorbent and did not enter the filtrate. The relations found by the author permitted the elaboration of a quantitative, microanalytical method for some cations and anions by means of chromatographic standards on Al_2O_3 in the aluminate form, on the basis of measurements of the height of the ion zone. The cations Fe^{3+} and Cu^{2+}, and the anions AsO_3^{3-}, AsO_4^{3-}, and PO_4^{3-} were investigated.

In the experiments with cations, the author used only sulfates to eliminate the effect of different anions, while the anions, for the same reason, were used in the form of their sodium salts. Aluminum oxide was used as adsorbent in chromatography (BTU-2962-51 (VTU-2962-51)). 20 ml of solution of ions with a concentration of 100 γ/1 ml were passed each time through the chromatographic column. Irrespective of the fact that the cations Fe^{3+} and Cu^{2+} are colored, their zones were developed in the column with a 1 N potassium ferrocyanide solution making them more distinctly noticeable. The anions were developed with a 1 N $AgNO_3$

solution. The numerical data given in the paper are mean values of 4-5 measurements. The dependence of the height of the zone on the amount of ion applied onto the column (Table 1) shows that a linear relation exists between the microgram amounts of the ions investigated and the height of their zones on the column. Experiments with macroamounts of substances have shown that the height of the cation zone depends on the presence of other ions in the solution. The author studied the sorption of microamounts of cations and anions in the presence of foreign ions. He investigated the system Cu^{2+} - Fe^{3+} at constant Cu^{2+}- and variable Fe^{3+} concentrations. The results (Table 2) show that the height of the zone on the chromatograms at 500 and 1000 γ Cu^{2+}, respectively, is not influenced by the presence of Fe^{3+} from 50 to 1000 γ. Hence, it follows a) that the multivalent cations and anions which are well absorbed by Al_2O_3 of the aluminate form show a linear relation between the height of the zone and the microgram amount of the ion applied onto the column, and b) that, in chromatographing microamounts of the ion, its

height of the zone does not change in the presence of small amounts of another ion even if the latter is better adsorbed. Table 3 shows the dependence of the height of the zone on the column diameter, Table 4 the heights of the zones obtained by means of chromatographic standards, which are well suitable for recording the calibration curves, and Table 5 the accuracy of the method. Examples for the use of the method are given. There are 5 tables and 9 references: 8 Soviet and 1 German.

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